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Marshaling holiday spirit



DON JOHNSTON/NEWSLINE

Director Michael Anastasio and his wife Ann helped lead the Livermore Holiday Parade Thursday evening. Anastasio served as grand marshal of the annual parade kicking off the holiday season. Also participating were Lab fire engines and the anniversary Cool Scientist Drill Team.

Lab contributes to retinal prosthesis

By Don Johnston
NEWSLINE STAFF

Laboratory engineers are developing a microelectrode array for a multi-laboratory DOE project to construct an artificial retina or “epiretinal prosthesis.”

The three-year DOE project brings together national labs, universities and a private company, with Oak Ridge serving as the lead laboratory.

An epiretinal prosthesis could restore vision to millions of people suffering from eye diseases such as retinitis pigmentosa, macular degeneration or those who are legally blind due to the loss of



The microelectrode array developed by researchers for the epiretinal prosthesis.

photoreceptor function. In many cases, the neural cells to which the photoreceptors are connected remain functional.

Project leader Mark Humayun, of the University of Southern California, has shown that electrical stimulation of the viable retinal cells can result in visual perception. These findings have sparked a worldwide effort to develop a retinal prosthesis device.

Expertise in biomedical microsystems at Lawrence Livermore’s Center for Microtechnology is being tapped to develop a

See **RETINA**, page 8

Energy Secretary Abraham lauds Laboratory’s ‘vital’ role in national security

By Don Johnston
NEWSLINE STAFF WRITER

Energy Secretary Spencer Abraham lauded the Laboratory’s work in national security as “vital to the nation” during an all-hands address to employees Tuesday afternoon.

“The missions that drive this Laboratory each day have never been more important,” Abraham said. “The role you play here is absolutely vital.”

In his opening remarks, the Energy secretary reflected on the Laboratory’s 50th anniversary and paid special tribute to its co-founder, Director Emeritus Edward Teller (see story below) for helping to win the Cold War and taking on new national security challenges.

“It’s all well and good to honor the past, but

See **ABRAHAM**, page 7

Abraham awards Teller DOE’s highest honor

By Lynda Seaver
NEWSLINE STAFF WRITER

Energy Secretary Spencer Abraham on Tuesday presented Director Emeritus Edward Teller with the prestigious Gold Award, the Department of Energy’s highest honorary award.

The award, consisting of a plaque with citation, a medallion and rosette, is in recognition of Teller’s “outstanding contributions to science and the security of the nation.” The secretary presented the award before a packed Bldg. 123 auditorium, following a special all-hands address to employees (see above story).

“Dr. Teller is one of the most remarkable of people,” Abraham said just before presenting

See **TELLER**, page 7

Nevada Test Site museum and research center under construction

By Don Johnston
NEWSLINE STAFF

A distant vision that was little more than a mirage in the desert only a few years ago, the Nevada Test Site Museum is well on its way to becoming a reality, thanks to the efforts of a dedicated core of NTS veterans.

The Nevada Test Site Historical Foundation Museum is scheduled to open its doors on the University of Nevada Las Vegas/Desert Research Institute campus in October 2003.

“Many of the Lab’s great scientific and technical achievements could not have been

demonstrated without the NTS partnership that is characterized by a long standing dedicated workforce, an amazing “can do” attitude, and unique physical assets. The effort to preserve the history of the Nevada Test Site is an enterprise that should be of great interest to many Laboratory employees,” said Glenn Mara, deputy director for Operations and a veteran of nuclear testing. “Livermore has been a big part of the Nevada Test Site’s rich history, and will continue to be a defining element in its future. The partnership has helped transform a piece of the Nevada desert into a unique national asset that has served national security extremely

well, and will continue to do so.”

In partnership with DOE and the Desert Research Institute, the Nevada Test Site Historical Foundation is building a 61,000-square-foot research center, records repository and museum display area to be called the Nevada Atomic Testing History Institute (NATHI). The institute will consolidate, preserve and provide public access to historical and archival records, films and photographs as well as testing and archaeological artifacts related to NTS.

The museum will consist of 8,000 square feet

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Clearing the air

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Joining the ranks

—Page 4



With class

— Insert



LAB COMMUNITY NEWS

Weekly Calendar

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Sunday
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Ravenswood Historic Site, located at 2647 Arroyo Road in Livermore, will be decked out in turn-of-the-century holiday decor for

its annual **Ravenswood Victorian Yuletide**, scheduled for noon to 5 p.m. The event features music, caroling, holiday crafts, tours of the Ravenswood Cottage House Museum and carriage rides. Food, refreshments and holiday gifts will be available for purchase. Admission is free. Contact: 447-9480 or 443-0238.

Wednesday
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A representative from **Fidelity Investments** will be on-site to meet with employees today and Thursday as well as Dec.

18-19. Fidelity Investments are available to UC's 403(b) participants in addition to the UC-managed investment funds. To schedule an appointment, contact Fidelity at 1-800-642-7131 (when calling, be sure to specify you are an LLNL employee).

Thursday
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Today is the last day to donate toys to the **American Indian Activity Group's** third annual toy drive for Oakland's Ameri-

can Indian Child Resource Center (<http://www.aicrc.org/>). AICRC has 129 foster children, ranging in age from 11 months to 17 years old, on this year's list. All gifts can be brought in wrapped or unwrapped; if wrapped, ensure that tag is marked with proper age noted. (Gift certificates preferred for teens.) Every contribution is greatly appreciated. Contact: Darlene Yazzie, 3-7846.

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All food and gift donations for this year's **Brighter Holidays program** should be dropped off at the Discovery Center (formerly Visitors Center) between 8 a.m. and noon. This year, Lab employees are assisting 75 families. Remember to put your family number on all packages coming in. Contact: Joanna Stadler, 2-7985 or Annette Springer, 3-3546.

Friday
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All contributions for the **Engineering 2002 Holiday Card Fund** are due today. To participate, simply donate the money you would otherwise spend on

greeting cards for other employees. Your donation will be forwarded to the Senior Services Center in Livermore, which will use the funds to purchase food certifications for needy seniors. Donations may be made in cash or by check (payable to the Senior Services Center). Mail it to Christmas Fund, L-113. Contact: Maureen Midkiff, 2-2626, Lorna Naugle, 2-8063, or Ann Tyler, 2-4380.



Valley Dance Theatre is presenting **The Nutcracker** Dec. 21-22 and Dec. 26 at the Livermore High School Theatre. For tickets or more information, call 243-0927.

Security refresher briefings due Dec. 13

All LLNL employees and contractors must complete their annual Security Refresher Briefing by Dec. 13. The briefing is available on the Safeguards & Security Program Website at <http://www-r.llnl.gov/securityprogram/index.html>, or type in the short cut: security.

People exempt from this requirement are: visitors; off-site contractors without clearances; contractors whose clearances are held at other DOE facilities; and DOE employees.

If you've taken the Initial Security Briefing and the Comprehensive Briefing since Jan. 1, your Security Refresher Briefing will be due one year from the date you took the Comprehensive Briefing.

In order to take the quiz on the LLNL internal



Time's running out to take the Security Refresher Briefing.

8284 or 3-3300.

Web testing system, you will need to enter your Institutional ID and password.

If you do not have an Institutional ID and password, you can get them at https://www-ais.llnl.gov/llnl_only/docs/menu/

Questions regarding the Security Refresher Briefing requirements should be directed to Security Education, 3-

Lab employee shares new reason for giving thanks

Thanksgiving has come and gone and hopefully we are all looking forward to the holiday season. But before we get too far past Thanksgiving, I would like to take you back a few days and share with you yet

another reason to be proud you are a member of the LLNL Family.

I was looking forward to this Thanksgiving more than most because I felt I had so much to celebrate. Much of that joy came from my family, where one niece was about to bring a new life into the world, another was successfully battling breast cancer, a third was about to embark upon marriage, a fourth had survived her first year of driving (and so had her family!) and a nephew had entered the age of dreaming of his first car. I was also thankful for my many friends at a world-renowned Laboratory dedicated to performing scientific research in the national interest.

One of the things I did to celebrate Thanksgiving this year was to go on a bicycle ride Thursday morning with my husband, John, who also works at LLNL. And that's really where this story begins.

While riding east on Tesla just past the hill at the end of Vasco, I bumped into the rear tire of my husband's bicycle. Experienced bike riders can envision what happened next as I careened into the roadway and tumbled off my bicycle. There was a lot of pain, but I was wearing my helmet, and because of the cool weather I had on arm-warmers. That meant I didn't get a head injury or too much road rash. But I did come down hard and was pretty sure I had broken something in my shoulder, so I told my husband we needed help. People in a car not far behind us stopped, and used a cell phone to summon help. (Bless those who get involved with accidents when they see them!) The first emergency responders on



PERSPECTIVES

— PAM POCO

OPSEC PROGRAM MANAGER

the scene were the men on duty at the Lab's Fire Station.

Now, while most of us were planning a wonderful dinner with our families, fire station staff were on duty. Being the best national

Lab in the world means that we not only have the best scientists in the world, we also have an infrastructure that is responsible for the smooth operation of the Laboratory. Firefighters are part of that infrastructure and are part of a mutual aid agreement with the county. As a result, they were the first on the scene of my little accident.

The firemen who responded were, of course, the heroes you'd expect any fireman to be. But frankly, I was so focused on my pain that I didn't think to ask where they were from. I didn't know that the service and support they were providing me were part of the capability they maintain on behalf of the Laboratory, and that they are another of the benefits the community receives by being home to a national laboratory. I just remember the warm hands, the caring manner, the effort to evaluate my condition, and how they kept me warm and relatively comfortable while we waited for the ambulance. It wasn't until Saturday that my husband told me they were Labbies.

So as painful as the ordeal was, I ended Thanksgiving with two more reasons to be thankful: First, an excuse for getting out of wrapping holiday presents (my scapula is broken) and, second, a better understanding of the special gift LLNL provides to the community in sharing the services of its firemen in our mutual aid agreement. Oh, and since I was too out of it to remember to say so at the time, "thank you" firemen who came to my aid on Thanksgiving morning.

Editor's note: Perspectives is an occasional column written by Lab employees.

IN MEMORIAM

Russell Rasmussen

Services have been held for Russell Rasmussen, a Lab retiree, who died Nov. 4 of cancer. He was 70.

Rasmussen worked as a rigger at the Lab for more than 18 years. Born and raised in Livermore, he served in the Army during the Korean War.

Rasmussen enjoyed hunting and fishing, and was a member of the Native Sons of the Golden West and the Livermore-Pleasanton Rod & Gun Club.

Survivors include his wife Mary; children Mark, Holly, Jess and Sean; and five grandchildren.

Contributions in his memory may be made to the American Cancer Society.

Newsline

Newsline is published weekly by the Internal Communications Department, Public Affairs Office, Lawrence Livermore National Laboratory (LLNL), for Laboratory employees and retirees.

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NEWS OF NOTE



Laboratory researcher to clear the air on regional haze

By Anne M. Stark

NEWSLINE STAFF WRITER

SAN FRANCISCO — A Lab researcher with colleagues from Colorado State University on Tuesday will show that forest fires likely contributed to periods of regional haze in Yosemite National Park in 2002.

Graham Bench, an LLNL scientist, and researchers from Colorado State conducted a three-month survey of air quality in Yosemite. Their findings, to be discussed Tuesday during the 2002 fall meeting of the American Geophysical Union in San Francisco, demonstrate that organic aerosol concentrations in Yosemite National Park were significantly above the historical average in 2002.

The researchers conducted their study taking measurements of PM 2.5, (particulate matter; in this instance, the particulate matter is 2.5 micrometers or smaller in size) from July to September 2002 from a site atop Turtle Back Dome in Yosemite.

Sources of PM 2.5 include fuel combustion from automobiles and diesel-powered vehicles, power plants, wood burning, forest fires, industrial processes and agricultural practices.

“It became apparent during the course of the study that smoke transported from massive wild-



Three Andersen hi-volume samplers were used to obtain aerosol samples for organic speciation work. The left and center samplers have 2.5 mm cutpoints. The left sampler was used to expose filters, during upslope flow only, for carbon isotopic analysis.

fires in the Western United States likely contributed to periods of haze in Yosemite this year,” said Bench, who works at Livermore’s Center for Accelerator Mass Spectrometry.

Using mass spectrometry, Bench analyzed the air samples to determine the fraction of biogenic and man-made carbon contributing to the PM 2.5. His findings show that biogenic carbon contents

health.

The group will present its findings at 1:30 p.m. Tuesday in Moscone Center, Room 124.

More than 100 other Lab researchers will be participating in discussions and/or poster sessions at this year’s AGU fall meeting that runs today through Tuesday at the Moscone Center in San Francisco.

varied directly with the total carbon loading, and for periods of the study contributed up to 90 percent of the total PM 2.5. The high concentration of organic carbon that contributed to periods of reduced visibility in Yosemite this summer likely came from forest fires in Oregon and Southern California during the sampling.

PM 2.5 particles are so small that they are able to penetrate to the deepest parts of the lungs. Studies have shown links between fine particulate matter and numerous respiratory problems. PM 2.5 also is a major source of visibility impairment in most parts of the United States.

These fine particles also have a great attraction to water, which results in acid rain. Acid rain affects all biological or man-made products and can have repercussions to human

New Information Management revamps review and release process

The Laboratory is about to change the way it handles the review and release process of various documents. Called Information Management, the new system will allow directorates and programs to more easily track and control their information, incorporate an online system, and focus on the review of information rather than the release of documents.

The system was rolled out this week in a special pilot program for the Computation Directorate.

Through Information Management, directorates will see a faster, more efficient path to the release of their documents. The control, responsibility, and accountability for the Information Management process will rest with authors and their directorates.

“Through this new system, we are making it possible for a three-day turnaround for review and releases of documents, rather than the usual seven days,” said Mike Hodsdon, project manager for IM and one of the developers of the IM process.

Previously, authors and programs had difficulty tracking their documents. Once a document was produced, it would be moved to Document Approval and Report Services (DARS), where there was no way of tracking the document’s progress as it went through a review and release process that could take days, weeks and sometimes even months, depending on the nature of the document.

The new Information Management system shifts many of the DARS responsibilities onto authors and trained directorate reviewers. The Innovative Business and Information Services Department (IBIS) will maintain an online form for document tracking as well as a database, coor-

dinate training programs for the new IM policy, assign UCRL numbers, and release information to Documents Online and the Office of Scientific and Technical Information (OSTI).

Under the new IM process, authors will:

- Ensure the appropriate management, protection and dissemination of the information generated.
- Consult with an Authorized Derivative Classifier (ADC) when appropriate.
- Screen the document for information that could be misinterpreted, impact operations security, and/or cause legal problems for the author, LLNL, DOE, UC or NNSA.
- Follow directorate-specific review procedures.
- Complete a Web-based IM form (to replace the Document Release form).

The directorates will be primarily responsible for developing their own directorate-specific review procedures and will designate their directorate reviewers.

Directorate reviewers will:

- Review documents using the screening criteria in the Information Management Policy.
- Notify the authors of required changes.
- Forward documents to the Office of Classification and Export Control (OCEC) and/or Industrial Partnerships and Commercialization (IPAC) for additional reviews or the Information Management Group (the former DARS) for release.

The IM system will be rolled out across the Lab in a number of stages. The Computation Directorate began participating this week in the interim phase of the project, with the Chemistry & Materials Sciences directorate to follow. Other direc-

torates will be scheduled in coming months.

The current process requires authors to complete a new Web-based form. They will then forward copies of the completed IM form (a generated PDF) along with their documents to their directorate reviewers and OCEC and IPAC, if necessary.

In Phase One of the implementation plan, data about the document and the document itself will be electronically routed from the author to the reviewer. This information will reside in a database that can be accessed by OCEC and/or IPAC for additional reviews. The initial release of Phase One is scheduled for July 2003.

The Information Management system was created from a team of directorate representatives, the Office of Classification and Export Control, Industrial Partnerships and Commercialization, Operations Security, an AIS Programming Team and Innovative Business and Information Services.

The Information Management Policy is in accordance with the Department of Energy Order 241.1, “Scientific and Technical Information Management.” The policy ensures that scientific and technical information resulting from LLNL research is identified, processed, disseminated and preserved in accordance with UC Contract 48 and DOE requirements regarding classified information, patentable material, sensitive unclassified information, operations security information, export control information and intellectual property.

For more on the new Information Management system, click on the Information Management subtab, under the Services tab of MyLLNL, <https://www-r.llnl.gov/>, or call Mike Hodsdon at 3-4005.



NEWS YOU CAN USE

New captains named to meet growing security requirements

Safeguards and Security has three new captains in its Protective Force Division. They are Gary Abundis, Dan Judd and Charles Johnson.

Over the past five years, PFD has grown significantly to meet institutional and DOE requirements for protection of personnel, materials and property. The increase in staff size and responsibilities requires a change in division organization to provide the most effective delivery of services to the Laboratory and leadership within the PFD, noted PFD leader Eric Steele.

Abundis has more than 20 years of experience within the PFD. He started as a member of the Security Response Team (SRT) and in 1986 became a sergeant.

He has served as a SRT team lead, crisis



MICHAEL ANTHONY/TID

In a recent early morning ceremony, Dan Judd (left), Gary Abundis (center) and Charles Johnson (right) were sworn in as new Laboratory captains to serve within the Protective Force Division by division leader Eric Steele.

negotiation team lead and acting watch commander. In addition, Abundis is a certified DOE range master/instructor and instructor for weaponless defense.

Judd has more than 28 years of experience

within the PFD. He started as an officer and in 1979 became a sergeant. He has served as a SRT team lead, the Operations administrative sergeant, and acting watch commander.

“Both Gary and Dan have been strong leaders and mentors in their assignments,” Steele said.

Johnson has more than 26 years of law enforcement experience, with the San Mateo Police Department. His assignments have included SWAT commander, field training sergeant and police captain.

As a captain, Johnson developed effective

working relationships with federal agencies and many of the counties in the Bay Area. He has substantial experience with continual work environment improvement and implementing new procedures.

Technical Meeting Calendar

Friday
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NAI
“Reducing Vulnerability to Terrorism: The Role of Science and Technology,” by Lewis Branscomb, Technology and Public Policy Program at Harvard. 10 a.m., Bldg. 123 auditorium (uncleared area). Contact: Lisa Palmer, 2-2408.

INSTITUTE FOR SCIENTIFIC COMPUTING RESEARCH
“The Oxymoron of Computer ‘Science’ ,” by John Perry, Foothill Deanza College. 2:30 p.m., Bldg. 551W, room 1400 (uncleared area). Contacts: John May (CASC) 3-8102, or Leslie Bills 3-8927.

PHYSICS & ADVANCED TECHNOLOGIES
“DEIMOS: A Powerful New Keck Spectrograph for the DEEP2 Survey,” by Andrew C. Phillips, UC. Noon, Bldg. 319, room 205. Michael Gregg, 3-8946, or Sandra Maldonado, 3-0621.

Monday
9

ELECTRONICS ENGINEERING TECHNOLOGIES
“Moems Electrostatic Scanning Micromirrors,” by Pamela Patterson. 10 a.m., Bldg. 141, room 1104 (uncleared area). Contact: Steve Azevedo, 2-8538.

CAS
“Advances in Discrete Elements for the Modelling of Multi-Fracturing Solids and Particulate Media,” by D. R. J. Owen, University of Wales. 10 a.m., Trailer 1456,

room 1010 (Rubble Conf. Room). Contact: Stefani Payne, 3-4387.

Tuesday
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PHYSICS & ADVANCED TECHNOLOGIES DIRECTORATE-WIDE SEMINAR SERIES
“Production-Scale Thin Film Coating Tool for Atomic-Precision Multilayer Optics,” by Regina Soufli, R&D 100 Award Winner for 2002. 2 p.m., Bldg. 123, conference room A (uncleared area). Contacts: Ralph Jacobs, 4-4545.

Wednesday
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INSTITUTE FOR SCIENTIFIC COMPUTING RESEARCH
“Tools and Benchmarks for Performance Evaluation of Applications in Science and Engineering,” by Rudolf Eigenmann, Purdue University. 10 a.m., Bldg. 219, room 163 (uncleared area). Contacts: Bronis de Supinski (CASC) 2-1062, or Leslie Bills 3-8927.

Thursday
12

FRONTIERS IN TECHNOLOGY: QUANTUM COMPUTATION AND INFORMATION SEMINAR SERIES
“Quantum Computation with Trapped Atomic Ions,” by David Wineland, National Institute of Standards and Technology (NIST). 3:30 p.m., Bldg. 543 auditorium (uncleared area). Contact: Dawn Brosnan, 4-5008.

Friday
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INSTITUTE FOR SCIENTIFIC COMPUTING RESEARCH
“Digital Libraries for Scientific Data

Management,” by Reagan Moore, San Diego Supercomputer Center. 10 a.m., Bldg. 451, room 1025 (uncleared area). Contacts: Ghaleb Abdulla (CASC) 3-5947, or Leslie Bills 3-8927.

CHEMISTRY & MATERIALS SCIENCE
“Development of Neutron Probes at the INEEL for Characterization of Hazardous Materials in the Sub-surface Medium,” by Raymond P. Keegan, INEEL. 11 a.m., Bldg. 151, room 1209. Contacts: Wayne Ruhter, 2-5762, or Rosa Yamamoto, 2-0454.

DEFENSE & NUCLEAR TECHNOLOGIES DIRECTORATE COLLOQUIUM
“Inertial Fusion as an Energy Source,” by Max Tabak. 10:30 a.m., Bldg. 132 auditorium, room 1000 (cleared area). Contact: Mark Herrmann, 2-6999.

H DIVISION DYNAMIC OF METALS WORK IN PROGRESS SEMINAR
“Plastic Deformation Under High Temperature and High Pressure: Minerals from the Earth’s Deep Mantle,” by Patrick Cordier, Universite des Sciences et Technologies de Lille. 1:30 p.m., Bldg. 235, room 1090 (uncleared area). Contact: Donna Vercelli, 2-0976.

The deadline for the next Technical Meeting Calendar is noon, Wednesday.

THE HOME PAGE



HOME success leads to campaign deadline extension

By Ted Michels

HOME 2002 CHAIR

The HOME (Helping Others More Effectively) Campaign 2002 pledge-processing center is swamped! Thank you for the hundreds of envelopes returned last week and during the holiday weekend. Nearly 3,000 Laboratory employees and contract staffers now have pledged or donated toward our goal of \$1.4 million. As of December 3, the campaign had received more than \$1.1 million in donations.

Because your response has been so overwhelming, I have decided to extend the campaign deadline through Friday, Dec. 13. This gives you (and the pledge-processing center volunteers) an extra week to help such local

nonprofit agencies as the United Way, the Tri-Valley Community Foundation, McHenry House in Tracy, or Easter Seals Kaleidoscope. In fact, you can still support any 501(c)(3) nonprofit you wish.

The Laboratory's HOME Campaign began 28 years ago as a way to assist Tri-Valley agencies that were, at the time, largely unsupported by the United Way. Over the years, the campaign has grown to become a major fund-raiser for many of the individual agencies listed in the HOME Campaign packet.

Today's HOME Campaign contributions fund local and regional programs, including shelters for the homeless, early childhood development, health, education, environmental quality, and many unique causes. For more information about

the HOME Campaign, see the HOME Website at <http://www-r.llnl.gov/home2002/>.

Volunteers are continuing to staff the pledge-processing center in two three-hour shifts every working day through the end of the campaign. I salute all those who have helped in this selfless effort, and all those who have pledged or donated.

I ask you to consider joining them if you have not already done so. Employees and contract staff all have the option to contribute a one-time donation or to pledge monthly through payroll deductions. Johnson Controls, the Lab's contractor for supplemental labor, will once again provide matching funds for every dollar contributed by its workforce.

Thank you for helping to make HOME Campaign 2002 a success!



PHOTOS BY STEVE KIAR/COMPUTATION

Lucky winners of the Nov. 26 drawing included (left to right) Augustin Arrivas, gift certificate from United Studios of Self Defense; Joanne Breznik, gift certificate to Lemon Grass Thai Restaurant; Kathleen Noonan, end-zone tickets to a San Jose Saber Cats home game; Famie Mangabay, gift certificate to Round Table Pizza and a Batman action figure cut-out; Ember Foley, HOME Campaign pledge-processing center manager; George Davis, gift certificate to Round Table Pizza and a Wonder Woman action figure cut-out; and Craig Schwonke, gift certificate to Round Table Pizza and a Robin action figure cut-out.

Drawings to a close

After the long holiday weekend, the Dec. 3 drawing winners were (left to right) Dick Crawford, spa pedicure package at Tony's Nails; Kim Yates, Nov. 26 winner of the gift certificate to Garre Winery; Jim Leimbach, gift certificate to Lemon Grass Thai Restaurant; Ted Michels, HOME 2002 campaign chair; Gregg Brumburgh, Orlando Cepeda bobble-head figure from the San Francisco Giants; Jaquie Harrison, bottle of Garre Winery 1996 merlot wine; and Hao-Lin Chen, gift certificate to Blockbuster and a Johnson Controls cup holder. Unable to attend in person were Beverly Williams, gift card from Sears with a Johnson Controls cup holder. The winner of the folded flower quilt created by the Piecemakers wishes to remain anonymous. The HOME Campaign committee particularly thanks this anonymous winner, who has donated the quilt as fund-raising opportunity for the Tri-Valley Haven for Woman and Children.



HOME contributions to date: \$1,031,081

Directorate	Total Employees	No. of Contributions	\$ Donated	% Participation
Director's Office	157	53	\$29,568	34%
Energy & Environment	344	93	\$38,569	27%
Computation	1053	393	\$178,047	37%
Chemistry & Material Science	521	162	\$68,924	31%
Safety, Security & Environmental Protection	1106	281	\$86,951	25%
Physics & Advanced Technologies	416	165	\$69,029	40%
Defense & Nuclear Technologies	430	155	\$68,236	36%
Laboratory Services	1494	548	\$130,620	37%
Engineering	2292	509	\$207,443	22%
NIF Programs	212	92	\$31,656	43%
CFO	101	68	\$16,531	67%
NAI	265	100	\$36,625	38%
Administration & Human Resources	307	125	\$30,561	41%
Biology & Biotechnology Research Program	252	69	\$15,867	27%
Supplemental Labor	721	82	\$20,265	11%
Others	11	11	\$2,190	100%
TOTAL	9682	2906	\$1,031,081	30%



CLASSIFIED ADS

See complete classified ad listings at
<https://www-ais.llnl.gov/newsline/ads/>

AUTOMOBILES

1993 Lexus, ES300, orig owner, 121K , green, beige leather int., auto, sunroof, security, cruise control, 6-CD changer, auto climate, \$8200 or BO. 925-735-3147

2000 - Honda Accord SE, 24K mi., AT, AC. 4 CYL, \$15,000 925-449-0463

1997 - Chevy Lumina, 4-door V6, PW, door locks, AC, cruise control, AM-FM cassette, tilt, 104K miles, all highway. Excellent cond. \$4,300. 209-524-2051

1997 - Red Honda Accord Special Edition: fully loaded - spoiler, alarm system, moon roof, cruise control, cd player, 96,000 mi. 9,500 OBO 505-238-9516

1993 - Lexus, ES300, orig owner, 121K , green, beige leather int., auto, sunroof, security, cruise control, 6-CD changer, auto climate, \$8200 or BO. 925-735-3147

1997 - Honda Accord SE 2dr, 4cyl, Pwr Windows & Door locks, Tinted Windows, 91K miles, Maintenance Records! \$9,000 obo. 209-823-0234

1994 - Oldsmobile 98.Deluxe model; all leather,etc. 80,000 miles. New: water fittings, tires, computer chip, brakes, rotors, rear hydraulics. \$3500. 925-455-9653

1991 - Ford Explorer Eddie Bauer, 4X4, V6, 5 Sp Manual, Fully Loaded, tow package, Premium Sound, Emerald Green/Tan, 11 yrs of TLC w/ Original Owner \$6K 510-486-8750

1988 - Acura legend, 140,000 miles. V6 4-door \$3,100.00 925-447-5490

1998 - 1998 Toyota Sienna Great Condition! 91k miles \$8500 obo rides like a dream, interior in excellent condition 209-544-1207

1995 - Camaro,6 cyl,custom wheels,custom paint,racing stripes,new tires/tranny/ radiator,PS/PB/PL ,Auto,Alpine AM/FM/CD,fog lights,FlowMasters. \$5995/OBO 925-443-6621

1999 - Ford Expedition 4X4. 17in. wheels, 63k mi. XM Satellite radio, 6 disc CD, third row seat. Night blue, grey leather int. \$23,500. 925-513-9027

2001 - Saturn SC2 3-door. White ext./gray int. Excellent condition, 33K mi., all the extras, ppd. maint. \$9,950. 925-485-1988

1992 - Plymouth Laser RS AWD (turbo), 5 sp, ABS, Loaded, Custom alloy whl, Many performance parts, Premium sound, White, 184K mi, Very Clean. Asking \$2600. 209-834-1665

2000 - Mitsubishi Eclipse GT, silver w/ black cloth int. MP3 player in-dash, new tires. 48k miles. 75k Ext. warranty. Original owner \$13,500 916-798-5825

1998 - Ford Mustang,2DR Coupe,Silver,Auto-Trans.,Tinted Windows,Spoiler,CD,Good Condition,85K miles, \$8,000 OBO. 925-964-0534

1969 - El Camino,clean,bored 396, V8,custom shell, a/c,ps,headers/racing cam,new brakes,engine,carb/parts,seat covers, etc. \$7500/offer. 925-443-4065

1996 - Ford Windstar GL, new engine, runs great and in good condition, 78K miles, \$5,700 obo. 925-516-2774

1967 - Ford Mustang, Straight 6. Bright Cherry Red with Black Vinyl Top. Runs very good. Needs some carb work. CD. \$6200 OBO. 209-835-5031

1998 - Chevrolet Tahoe, 2WD, 5.7 liter, Tow package, Leather interior. \$17,000 209-836-5784

1996 - 1996 Z28 SS, 64,000 miles. Original, must see to appreciate. \$12,800 firm. 209-599-4522

1994 - Chev Beretta auto trans v-6 140,000 miles excellent gas mileage good running condition 2500.00 obo 209-835-7357

AUTOMOBILE ACCESSORIES

1962 - Complete 1300cc All German

Vw Engine. New Vales, Head Re-Seated. Very Sound! Asking \$450. Call Anytime 925-373-7294

Tire snow chains-cable type. Fits P225/60R15 and related tire sizes. \$5 925-373-9224

Lexus stainless steel coffee commute mug. Brand new, still in pouch. Paid \$20. \$10. 925-648-0671

Wolf leather hood protector. Removed from a 1997 Chevy Silverado. Asking \$40 obo. 209-480-3279

BICYCLES

16 inch Mongoose boys bicycle, chrome, BMX style, like new. Comes with training wheels. See to appreciate. \$125 new in 1996, asking \$45. 925-443-8270

BOATS

1977 16 1/5 ft Tahiti Tri-hull, 130 hp Volvo-Penta I/O, 300 + hours. Will pull skier, Great fishing boat. \$2,500 obo call Dwayne 925-706-2408

ELECTRONIC EQUIPMENT

Linksys WiFi wireless home computer network. Includes: Cable/DSL router (4 ports), network adapter, and PC card. \$100 (seen on E-Bay for \$189) 415-673-9499

iPod for Windows 10GB like new \$350/obo. Nomad Jukebox mp3 player for Windows 6GB \$150/obo. 925-895-3305

Super Mario Sunshine Nintendo GameCube Bundle new in box. Won it in a drwing, already have one. \$175 (List \$189.99) 209-931-7813

GIVEAWAY

2 pairs old waxless cross country skii, 1 pair waxable, with 3-point bindings. Good condition. 925-455-0542

End table, 15D x 60W x 29H, top needs refinishing. Toddler slide, 22 inch high. Ox yoke, 28 inch wide. Steel wheelbarrow wheel, 7 inch diameter. 510-733-9802

Elec Cook top, four burner coil, works great. Kitchen sink, Dbl Basin, no chips. Both fairly old but look good. Free, can bring to Lab. 925-833-8339

FREE for the taking: 1969-1978 FIAT 124 engines (disassembled), transmissions, various drivetrain parts. 925-443-8303

HOUSEHOLD

Ceramic Lionel Santa Fe 2333 (War-bonnet) collectable cookie jar. New in box. \$25. 925-426-8452

Router: Craftsman, 1 1/2H.P. With table, fence, and miter. \$60.00 924-447-1009

Walnut rolltop desk, with three large drawers.. Like new. 35in x 18in x 38in. \$150/BO. Photo available. 925-455-0542

Dinning Room Table, oak with 4 chairs. Very good condition. \$175. Call evenings/weekends. 925-447-3780

MOVING SALE - Couch, loveseat, corner oak ent. center, bdrm set, computer table, 32in color TV, kitchen table w/6 chairs, hope chest. 925-245-0789

Decorative, White/brass Daybed with trundel unit and 1 twin mattress in great condition, \$175 OBO. 209-824-9751

Kenmore Large Capacity Washer and Gas Dryer, white, both in good working order, \$100, 925-455-0836

Old mint condition Magnavox console stereo. Best Offer 925-449-3499

MOVING SALE! Friday/Saturday, December 13 & 14 9:00a.m.-2:00p.m. Dinette, couch, clothing, household, toys & MORE! 4811 Kimberley-Common, Livermore. 925-455-5245

Sofabed-brown \$25/obo, kitchen table-wood,oval \$25/obo 925-449-0463

Platform double bed, 6 dwrs, head-board, \$45. Computer desk, hutch, and

printer stand, \$45. 925-200-9976

Bread Machine - Panasonic. Like new \$75.00 OBO. Pollenex Whirlpool Power Spa (in tub) with automatic timer. Excellent condition. \$45.00 OBO. 925-820-2092

Two Marble Double Sink Tops, 21x92 Beige Swirl & 21x82 Gold Swirl. Each with 4 inch back splash. White cabinets too. \$45 each. Entry Door \$45. 925-938-4136

King size mattress great condition - \$50 925-455-1392

New Condition GE Profile Oven and Microwave set, separate units low profile white. Perfect for kitchen remodel or upgrade. \$300.00 OBO Scott 925-426-8156

Beautiful oak computer desk and hutch. Approximately 5ft by 6.5ft. Purchased new \$3K, sacrifice sell \$800 obo. Pictures available. 510-881-8536

LOST & FOUND

Lost black wool jacket with silver buckles on each side. Call 209-836-5161

MISCELLANEOUS

24 Inch Scroll Saw, Rockwell. All cast iron, variable speed, air blower, light, large table, w/ owners manual \$125.00 925-447-1009

Antique hope chest with domed lid. Mosaic-like exterior. Good condition. 28x18x22. \$100/BO. Photo available. 925-455-0542

Mens sportcoat, Navy blue. Size 38. Excellent condition. \$35. 925-648-0671

Baby/Toddler Furniture System: carseat, stroller, bassinet, carriage, table & chair... System replaces 15 items. Great cond. Pd \$1000, ask \$400. 925-455-8258

Pearl necklaces (2) - lustrous, round japanese cultured pearls w/ 14k clasp. One is 16 inches, one 18 inches. \$49 each. 408-263-7323

Fisher Price childrens table and 2 chairs. Table has blue legs, yellow top. Chairs have blue legs, red seat and back. Very sturdy, xint cond. \$20. 925-443-8270

Rose Parade Tickets - 5 premium tickets at start of parade. All tickets sold together for \$400. 320 W. Colorado 209-614-1694

Firewood;2.5 cords of Almond, seasoned 2 years, covered, clean & dry. Location Antioch, \$115 per cord. You pick up. 925-754-5366

Table Saw. Sears Craftsman 10 inch. Great condition. \$60.00 Dave 925-449-5441

Dickens Collectables/Christmas Village pieces & lots of accessories, perfect condition, used once, \$500 value for \$100. 925-449-3499

Kids Powerwheels GoCart. 2 speeds and reverse, 12V battery included, great for kids 4-7, excellent working condition, \$125 925-447-7160

Livermore High School Swim Coat. Green outside and gold lining. Perfect for cold days at the pool. \$45 firm. 209-835-5031

Two cyclone fence panels. One is 6ft x 9ft, other is 6ft x 6ft. Were used as part of dog run. Asking \$200 for both or best offer. 209-480-3279

MOTORCYCLES

1984 - 700 cc Honda, shaft drive, 1300 miles, needs battery (has been parked); \$1400/BO 925-455-0542

1991 - Harley-Davidson FXR, semi-custom. Great conditon. \$13,500 firm. Serious buyers only. 209-239-4450

1990 - Harley-Davidson Deluxe 1200 Sportster.Great running condition, lots of extras. \$7,500 or best offer. Serious buyers only. 209-239-4450

MUSIC INSTRUMENTS

Drum, full set. Ludwig brand. Like new. stool included. Paid \$800. Asking

\$450. 925-866-2033

Trumpet,student, \$125 925-243-1006

Violin, Suzuki, 1/4 size, with bow and hard case, \$225, 925-455-0836

1982 Richenbacher White W/Black Hrwr. With Case. Excl Cond. Asking \$700. 1983 Krammer Bass. Alum Neck W/Wood Inlay. Case Incl. Asking \$500. 925-373-7294

PETS & SUPPLIES

Lovebirds and Parakeets. Different colors. \$20-30 each or \$40/pair 925-776-5612

\$25 certificate for vet services at Bishop Ranch Vet Center in San Ramon. \$15. 925-648-0671

2 Blue Indian Ringneck birds (M & F), plus cage & toys \$600. 1 Grey Chin-chilla and cage \$250. 209-825-2048

HAY for sale, Excellent quality for horses and other livestock. Call Richard 925-455-1776

Heavy duty dog kennel with sun shades. Size 6x12x6 great value at \$225.00. Please call 209-599-3285

Rabbit cages (2) - FREE - one is metal, 2.5x5 feet; second is smaller plastic, other accesories too. All Free! 925-373-6751

Horse Boarding, Pleasanton near fair grounds, nice safe pasture situation, \$150 925-443-6531

My 5 mo.old female brendal pit-bull needs a loving home \$50. All shots, microchipped. 209-521-5062

RECREATION EQUIPMENT

Weight Machine in excellent condition \$50, get it out of my garage. 209-234-2314

Dry suit for diving. BARE brand. Mens medium-large. Good condition. \$75/BO. 925-455-0542

AerobicRider by HealthRider. Paid \$200. Sell \$50.00 OBO. 25 minute workout video included. VGC 925-443-1236

Skis with poles, \$20 each. New cross country Fischer Crown 205 cm skis. Old downhill K2 Competition skis, 190 cm, Salomon 505 bindings. 510-733-9802

Cardio-glider style exercise machine, good shape, electronic monitor; \$45 aft 6pm 209-832-2056

Radio controlled glider, 2-meter, brand-new, \$50 without radio 925-484-9028

Gregory climbing pack, model Snowcreek. Like new, size medium belt. Xtra pockets. \$125. 925-642-9006

RIDESHARING

Express your commute, call 2-RIDE for more information or visit <http://www-r.llnl.gov/tsmp>

Lafayette - LaMOrinda Vanpool (also Walnut Creek stop at Rudgear Rd), reclining seats, reading lights, 7:45-4:45, \$100/mo (pretax reduction available) 925-983-6701, ext. 2-3005

Orinda-Lafayette-Moraga - Carpool seeks 4th driver/rider. Leaves Orinda near St. Stephens and Hwy 24. Lab hours 8:10am - 5pm. 925-253-0498, ext. 2-9823

Concord,Walnut Creek,Clayton - Carpool looking for 4th rider/driver. Meeting place open, currently meeting in Concord/Clayton Lab hours 7:30am-4:30pm 925-672-6677, ext. 3-2153

Tracy/Sandia - 9/80 7:00am - 4:30pm. Currently do not have a vehicle. Looking to join a carpool or vanpool. Leave msg w/Sandia operator for John Gamino. 925-294-3000,

SERVICES

Looking for a Santa? The Exceptional Needs Network will be bringing Santa to Livermore on Saturday, Dec. 14, from noon to 2 p.m. for a special holiday party. Open to the public and all ages invited. Hot dog lunch, raffles, and a chance to tell Santa what you

want for Christmas. Cost is \$5 per child. No reservation necessary. Party will be at Brookmeadow Clubhouse, 450 Charlotte Common,(off Charlotte Way) in Livermore. For more information call ENN at 373-6468. Santa is presented by ENN, a non-profit organization dedicated to serving children with special needs. This party is a fundraiser for the organization.

Drywall by Enrique. No job too big or too small. 925-980-1302

Dependable housecleaning by experienced local person. References available. Also can do in-home care for children, elderly or disabled. 925-243-1632

Gift certificates are available. Therapeutic Massage, a gift that will greatly benefit the one you love. 510-593-0399

SHARED HOUSING

LIVERMORE - Two furn/unfurn rooms avail \$425/\$560 per month plus util. Full Privs. 1.5 miles to LLNL. Friendly housemates! 925-321-2842

Livermore - furnished room for rent. Mature adult/long term preferred. Clean/quiet. \$550.00 per month. Share utilities 1/3. Deposit required 925-449-1128

Livermore - 1 bedroom, 1 bath. Full priv. N/S, N/P. 4 miles to lab. 1 house-mate. \$450/mo + util. 925-200-9976

TRUCKS & TRAILERS

1984 - Motorhome Jamboree 27 foot Ford 460, runs great 8 mpg, sleeps 6 good shape roof recently sealed no known leaks. \$7,500 OBO 925-447-4797

1978 - Chevrolet Silverado, 4WD, 350 Eng, AT, PS, CD, Lumber Rack, Tow Package, Smogged, Tagged, \$3,000 OBO 925-828-9174

2002 - 6x5 Flat Bed With Lights. Color=Red Asking \$250.00 Perfect For Atv Vehicles. Call Anytime. 925-373-7294

1967 - Utility trailer made from short bed Ford pickup with spare tire. \$300 OBO 925-443-7434

White Miley 2-horse trailer, good condition, \$1700. 209-239-7895 or 209-239-7436

VACATION RENTALS

Soda Springs/Donner Summit Classic A frame, 2BR/1BA+Loft, sleeps 8, Walk to Royal Gorge 5 min to Sugar Bowl \$250 wknd,\$550/week call for availability 209-836-3481

south lake tahoe - 3 bedroom 2 bath chalet, nicely furnished, all amenities, close to all skiing, reserve now for holidays/skiing! 209-599-4644

WANTED

Wanted: Xpriencd English rider to ride my hunter 2 days/week (min) in xchgng for lessons. 925-443-1547

Washer and Dryer in good condition for a needy family and little girls furniture (209)832-7112 209-832-7112

Need a set of hubcaps for a 1991 Honda Accord size 14. 209-531-1527

Looking for a S-10/ S-15 blazer, 1988-92. Must be 4x4. 209-368-4286

Coins, numismatic literature, tokens, medals, currency and stamp collections bought. Any size considered. 925-449-1294

Wanted - Case Vac Or Farmall Cub Tractor. 925-846-0645

Portable Basketball system. 209-834-1665

Weight set with bench for teenage boy. Beginner set. Reasonably priced. 925-443-2826

Truck Wheel needed. One 15 inch 5 bolt steel wheel needed for my old Dodge half ton truck. Will pay up tp \$20.00 925-443-7729

ABRAHAM

Continued from page 1

it's the second part — keeping America safe in the coming years — that I want to talk about," he said, emphasizing that "this president and this administration understand and support the work you do at this Lab and throughout the complex, and we take pride in that work and you... We understand the critical role Lawrence Livermore plays in national security and its relevance to DOE's core mission.

"The name of our agency may be the Department of Energy, but the core mission of the department is national security," Abraham said. "What that means is that all of the department's programs, initiatives, offices and facilities have to be judged by how they advance national security."

DOE advances national security not only through weapons and other national security programs, but also by "advancing the nation's energy security,... and Livermore is dedicated to projects that do just that."

Abraham said the administration's support for national security and defense preparedness is borne out by the budgets it has requested, notably a \$433 million increase for the National Nuclear Security Administration; including a 23 percent increase over fiscal year 2002 to improve the aging infrastructure of DOE labs and re-establish the nation's capability for producing plutonium pits for nuclear weapons.

Supporting science, engineering and management skills that "enhance deterrence and reduce threats to our nation" also provides benefits to society "that go far beyond the military dimension of national security," he said. The Laboratory "has ably handled its responsibility" to ensure the safety, security and reliability of the nation's nuclear stockpile for many years, Abraham said.

"In the last 10 years, however, you have had to do that without nuclear testing. This is one of the greatest technological challenges of our time," he said, adding, "you here at Livermore are playing a key role in help-



BRYAN QUINTARD/NEWSLINE

During his visit to the Lab, Sec. Abraham met Protective Force Division officers Jody Wooten, David Spiers, Paul Talosig and Terry Robinson.

Abraham is greeted by Karl van Bibber on his arrival in the Bldg. 123 auditorium Nov. 26. The Energy secretary addressed employees and presented Director Emeritus Edward Teller with DOE's highest accolade, the Gold Award.

ing us meet this challenge using the latest computing technologies and advanced modeling capabilities to determine our stockpile's reliability."

Noting DOE's announcement last week at the SuperComputing 2002 conference in Baltimore of the awarding of a contract to IBM to build the world's two fastest supercomputers — "Purple" and "Blue Gene/L" — Abraham said these two computers "will have peak performance speeds three to 10 times the speed of

today's fastest computer.

"What's important about these machines isn't that they will set records for speed. That's fine for the headlines and the news stories," he said. "What's truly significant is how they will help us better carry out our national security obligations."

Abraham said certain nuclear weapons test simulations will be able to be calculated 390,000 times faster than on the 8-year-old Cray One supercomputer. "That's the speed of progress. That's the cutting edge."

However, even Purple and Blue Gene/L will one day be "obsolete curiosities" and replaced by even faster machines, he said, when that happens "we will be able to assess the safety, security and reliability of our nuclear deterrent with even more precision and accuracy. In a dangerous world, we must never slacken our efforts to improve these capabilities."

Abraham also described nonproliferation program initiatives, notably establishing the G-8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction and efforts to "focus international

attention on the threat posed by radiological dispersal devices or dirty bombs."

"Without Lawrence Livermore, America's nonproliferation efforts would be far less effective," he said.

Speaking of legislation signed Monday by President Bush creating the Department of Homeland Security, Abraham said, "over the next few months the specifics, detailing Livermore's contribution to the new department, will be worked out. I expect that this lab will provide the same high level of expertise and services to the Department of Homeland Security that you will continue to provide to DOE."

During his visit to the Laboratory, the Energy Secretary received briefings on LLNL stockpile stewardship and nonproliferation program

efforts, and toured the National Ignition Facility. Abraham was accompanied by his wife, Jane Abraham, who received a special presentation on the Lab's medical technologies program hosted by Tamara Jernigan.

For complete coverage and photos, see the special *Newsline* issue on the Web, located at <http://www.llnl.gov/llnl/06news/Employee/articles/2002/11-27-02-newsline.pdf>.



JULIE KORHUMMEL/NEWSLINE

TELLER

Continued from page 1

the award. "He is regarded, certainly, as one of the giant figures of the 20th century, whose contributions to winning both World War II and the Cold War are immeasurable.

"But I believe that Edward Teller should also be regarded as one of the most important figures of the 21st century," Abraham added. "Dr. Teller did not just help make the world safe from tyranny and aggression, he helped usher in the era of supercomputing that drives so much of our current science. His unwavering support for scientific education has inspired countless young men and women to pursue lives in science.

"As the history of the 21st century unfolds,

to be marked by fabulous advances in physics, computing, engineering and other fields, it will

be to the visionary Edward Teller that so much is owed."

The Gold Award has been given to only a handful of recipients, most recently to Gen. John Gordon, the first administrator of the National Nuclear Security Administration and now a member of President Bush's National Security Council.

Upon receiving the award Teller was greeted with a standing ovation. He humbly thanked the secretary, then outlined a few of what he felt were the significant achievements of the Laboratory, among them the submarine-based missile system and what he calls a next frontier — bioscience, including the Human Genome Project. He praised DOE for "doing everything to meet the challenges" during his 60 years of work with Los Alamos and Lawrence Livermore, then turned his praise to Lab employees as well as the future corps of researchers "to do much more than I have done."

For complete coverage and photos, see the special *Newsline* issue on the Web, located at <http://www.llnl.gov/llnl/06news/Employee/articles/2002/11-27-02-newsline.pdf>.



BRYAN QUINTARD/NEWSLINE

Energy Secretary Spencer Abraham (left) and Director Michael Anastasio (right) applaud Edward Teller as he was presented with DOE's Gold Award.



THE BACK PAGE

NTS

Continued from page 1

of displays taking visitors from Ground Zero mock-ups through life-size tunnels. Visitors will experience the life and history of the Nevada Test Site.

“The institute is an amazing story that reflects the same pioneering spirit that made the test site what it is,” said John Gilpin, manager of LLNL’s Office of Contract Management. “The dedicated group of NTS veterans who are turning this dream into a reality deserves a lot of credit.

“The highly motivated team” includes NTS veterans Troy Wade, Bruce Church, Linda Smith, Nick Aquilina, Peter Zavattaro and Bob Nelson, added Gilpin, who spent 14 years in Nevada.

The NTS museum project has garnered the support of the Smithsonian Institute and is now a Smithsonian affiliate.

But while the NATHI has come a long way, additional support is needed for the Nevada Test Site Historical Foundation (NTSHF) to fulfill its mission “to establish, promote and maintain a nuclear test history institute for scientific, historical, educational and charitable purposes.”

NTSHF is seeking to expand its 400 mem-



The Nevada Atomic Testing History Institute under construction on the University of Nevada Las Vegas/Desert Research Institute campus. The institute, which will include a research center, records repository and museum display area, is to open in October 2003.

bers to support long-term operational costs of the museum. Memberships are available at \$25, \$50 and \$100 levels. For membership information, call 702-895-0570.

In addition, exhibit items and artifacts are needed for the planned displays, said Steve Wofford, who serves as a Laboratory contact for the museum project. “There’s a real sense of excitement now that the museum is becoming a reality.”

Items and documentation being sought to enhance exhibits include audio-visual footage of civil defense, home bomb shelters, duck and cover drills, popular culture events of the early ’50s and ’60s, as well as photographs or other

artifacts.

Also sought are 1950s-era mannequins, clothing, popular culture items, physics and atom-related educational materials from the ’50s; a 1950s-vintage TV, replete with rabbit-ear antenna, and any artifacts relating to atmospheric testing or other research at NTS. For more information, contact Steve Wofford, 2-1033 or wofford1@llnl.gov; or exhibit consultant Loretta Helling, 702-295-1130 or Hellingl@nv.doe.gov.

For a virtual tour of the planned museum or for more information about the NTSHF, check the Web at: <http://www.nevadatestsite.com/>.

RETINA

Continued from page 1

“flexible microelectrode array,” able to conform to the curved shape of the retina, without damaging the delicate retinal tissue, and to integrate electronics developed by North Carolina State University. The device will serve as the interface between an electronic imaging system and the human eye, directly stimulating neurons via thin film conducting traces and electroplated electrodes.

“We’re very excited to be a part of this collaboration,” said Peter Krulevitch of the Lab’s Center for Microtechnology and leader of the team developing the flexible microelectrode array. Other Livermore team members include Lab employee and UC Davis graduate student Mariam Maghribi, fabrication technician Julie Hamilton, participating guest Dennis Polla, undergraduate summer student Armando Tovar from Trinity University, MIT graduate student Christina Park, engineer Courtney Davidson and scientist Tom Wilson.

Lab engineers have pioneered the use of poly(dimethylsiloxane), a form of silicone rubber simply called PDMS, in fabricating hybrid integrated microsystems for biomedical applications. In particular, the Lab has worked on “metalization” — applying metals for electronics and electrodes to PDMS for implant devices.

“It’s our important contribution to this project,” Krulevitch said. “We’ve developed a technique for fabricating metal lines that can be stretched. This is really critical for a flexible device

designed to conform to the shape of the retina.”

The electronic array must be robust enough to withstand damage from the implant procedure and be biocompatible — able to withstand the physiological conditions in the eye. Another reason for using PDMS is that silicone rubber is not only flexible, but also is a promising material from a biocompatibility standpoint.

Humayun’s group implanted three first-generation LLNL devices in a dog’s eye to identify needed design and fabrication improvements. Livermore engineers are now working on a second-generation microelectrode array with smaller electrodes in greater numbers, and developing techniques to integrate the electrodes with electronics chips. The array’s perimeter — 4 mm around — has been reinforced with micromolded ribs to facilitate handling and prevent curling or folding. The current version of the array is longer for short-term implant experiments. But the final device for implant will measure 4 mm x 4 mm.

Applications for the flexible electrode array go beyond the retinal prosthesis, according to Krulevitch, who says it has the potential to allow development of next-generation medical implant devices such as the “cochlear implant” for hearing. The technology could one day be used for “deep brain stimulation devices” for treating such diseases as Parkinson’s, and spinal cord stimulation devices for treatment of chronic pain.

Partners in the project include Oak Ridge, Argonne, Sandia, Los Alamos, USC Doheny Eye Institute and North Carolina State University.

For more information on the overall DOE Arti-

ficial Retina project, check the Web at: <http://www.energy.gov/HQPress/releases02/novpr/pr02248.htm>.



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